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ABSTRACT

Early Prevention of School Failure (EPSF) is a program designed to prevent children from failing academically. The program, which was introduced in the Wake County, North Carolina Public School System in 1986, identifies the developmental level of each participating kindergartner and recommends strategies to address each kindergartner's needs and strengths. Program evaluations included a short-term follow-up study in the 1986-87 school year and a long-term follow-up study through the 1991-92 school year. Results from the short-term study indicated that: (1) a total of 66 percent of kindergartners in the EPSF program showed gains of over 1 month of age per month of instruction in the age equivalency measures of the Peabody Picture Vocabulary Test (PPVT); and (2) a total of 21 percent of students who entered kindergarten with PPVT scores below grade level ended the year with scores at grade level. Results from the long-term study indicated that EPSF students did not show any gains over other students in retention rates, special education placements, or California Achievement Test scores. The EPSF kindergartners did not have lower special education placement rates than other students by grade 4. Those EPSF kindergartners who were identified as having considerable needs had a special education placement rate similar to that of other EPSF students by grade 4. (BC)

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EVALUATION REPORT: EARLY PREVENTION OF SCHOOL FAILURE LONGITUDINAL STUDY 1987-1991

REPORT SUMMARY

Author: Nancy R. Baenen

BACKGROUND

Early Prevention of School Failure (EPSF) is a nationally validated program designed to prevent children from failing academically. The program identifies each kindergarten child's developmental level in the areas of language, auditory, visual, fine motor, and gross motor skills. Recommended strategies are provided to address each student's needs and strengths. The primary goal of the program is to address students' needs early so that students can "catch up" with the rest of their classmates and maintain their progress. In addition, students are provided experiences to reinforce and extend their areas of strength.

The program was introduced to the Wake County Public School System as a pilot in 1986-87; it was expanded to cover all schools by 1989-90. The Department of Evaluation and Research was asked to evaluate the success of the program. Results related to the 1990-91 program were reported last spring. This report addresses long-term effects of the program as implemented in 1987-88, the second year of operation in WCPSS. In fall, 1991, the subsequent success of 1987-88 kindergartners in four EPSF schools was compared to that of students in similar non-EPSF schools. In addition, the study compared the progress of those students within EPSF schools who were identified with moderate or considerable needs in two or more areas with students who were not identified.

MAJOR FINDINGS

1. Short-term results for the language development of kindergartners participating in EPSF (between fall of 1987 and spring of 1988) were fairly positive. (Results were available for the Peabody Picture Vocabulary Test, which measures receptive vocabulary, but not for other modalities.)

    - Average gains in language on the Peabody Picture Vocabulary Test (PPVT) were 1.48 months per month of instruction for the 71 students who began with age-equivalent scores below five years of age. Students in the original EPSF national studies made

average gains in the language area (based on the PPVT) ranging from 1.39 to 3.12 months per month of instruction. Thus, WCPSS gains were positive but at the low end of gains seen in other pilot sites nationally.

- About two thirds (66%) of the kindergartners who entered EPSF schools with language needs made greater gains on the PPVT than would be expected without special services, i.e., more than one month per month of instruction. About 42% gained 1.5 months per month of instruction, the level mentioned by national EPSF staff as helping students catch up to peers quickly enough to be effective. On the other hand, 34% made smaller gains than would be expected without a special intervention.

- Overall, 21% of those who started kindergarten with age-equivalent scores of less than five years (below grade level) ended the year with scores of 5 years 8 months or more (considered on grade level) on the PPVT.

Thus, the 1987-88 EPSF kindergarten program in WCPSS was fairly successful in helping most participants gain more than would be expected with just the regular curriculum. However, a sizable group (34%) did not appear to benefit, and 79% of the students with needs continued to score below grade level at the end of kindergarten (an indication that subsequent assistance was probably needed).

2. Longitudinal results through fall, 1992 indicate students in EPSF schools fared about as well with the program as they would have without it. Thus, EPSF, combined with subsequent instruction, was not successful in giving participants an advantage over WCPSS kindergartners in comparison schools by the fall of grade 4.

   - By the fall of 1991-92, those served through EPSF in kindergarten did not show any long-term advantage over those not served in terms of retention rates, special education placements, or California Achievement Test (CAT) scores.

   - Within EPSF schools, by the fall of 1991-92, students with moderate or considerable needs in two or more areas ("needs" students) did show special education placement rates that were similar to their classmates without "needs", but were not able to "catch up" to their classmates sufficiently to have similar retention rates or CAT scores. Compared to those without this level of need, the "needs" students:

     - Were placed in special education at about the same rate (although learning-disabled placement rates appeared higher for the EPSF "needs" students);

     - Were retained twice as often; and

     - Scored significantly lower on the CAT.

3. EPSF (or other instructional efforts) may have had some positive impact on CAT scores of students identified with needs. Average third grade CAT scores for "needs" students were close to the national norm and slightly higher than would be expected based on second grade Otis Lennon scores. However, scores at the 50th percentile on the CAT still kept these students considerably behind their classmates in WCPSS (whose percentile scores averaged about the 70th percentile). Because kindergarten students in the comparison schools were not screened with EPSF, it is impossible to say whether EPSF or other efforts are responsible for test results.

INTERPRETATION

A three-year national longitudinal study of EPSF followed students from grades K-2 from 1985-88 in order to document that students were able to catch up to their age norms and were not distinguishable from their typical peers on standardized tests by the end of grade 2. Participants were provided additional service through a sister program to EPSF (SUCCESS) in first grade and then experienced a conventional educational program in second grade. Results found that the at-risk EPSF students made greater gains than those of the two national norm groups and sustained these gains. Other results included reduced retention rates, fewer referrals for special education, and greater teacher-reported success in reading and writing programs.

The WCPSS results found a short-term impact (during the kindergarten year) for almost two-thirds of those served by EPSF, but not the consistent long-term impact of this national study. Two factors are likely to have played a role in this lack of long-term results.

- The absence of a first grade follow-up component to the program in 1987-88 meant the program was not optimally implemented. It is unclear to what extent kindergarten and first grade teachers discussed students' needs, but it is clear that first grade teachers had no formal EPSF training. In addition, the curriculum, philosophy, and strategies used with students in first grade may not have matched those of a kindergarten EPSF classrooms well enough to allow students to continue to show strong growth. Those who made fairly strong gains in their initial year may have fallen behind without follow-up, and/or those who did not catch up may have stayed behind. EPSF staff and materials indicate follow-up is very important for those students with continuing needs.

- The fact that the average achievement in WCPSS is considerably higher than the national norm probably increased the likelihood that one year was not enough to bring students with needs up to the average level for the district.

Results of the study of EPSF program implementation in 1990-91 do not indicate the program was stronger in 1990-91 than it was in 1987-88. In fact, they suggest the opposite. The 1990-91 study found almost two thirds (923 of 1510 or 61%) of those students identified in the fall as having two or more areas of considerable or moderate need in the fall continued to have two or more need areas by spring posttesting. If all of these students returned to WCPSS in first grade, it would represent about 16% of the first grade enrollment. However, it is not known to what extent follow-up occurred for these students.

RECOMMENDATIONS

Three of the new WCPSS goals currently under development relate to providing optimal success for all students. One relates to success for all students by the end of second grade, and two relate specifically to at-risk and gifted students. Important decisions must be made about the role of EPSF in achieving these system goals. The following suggestions and recommendations should be treated as springboards for discussion among staff about the future of EPSF.

1. Some program or approach to meet students' early needs is critical. The question of whether EPSF can be that answer must be asked, given these results. Other programs have been developed since EPSF was first implemented in the early 1970s and may accomplish the same ends in a way that is easier to implement and less time consuming for screening. The WCPSS central staff now in charge of EPSF have explored this issue and concluded that EPSF should be bolstered (rather than dropped) in light of the WCPSS investment in the program up to this point.

2. Evaluation results suggest that, for EPSF to be successful, implementation needs to be more consistent districtwide, follow-up at first grade needs to be strengthened, and program effects need to be studied more fully by school staff and central administration. A clear evaluation plan, standards for success, and central record keeping system should be established. Documentation notes should also be collected concerning any special circumstances impeding implementation at schools.

   The "Talents" portion of the program deserves emphasis given the district's desire to optimize the potential of all students. Basic Talents materials were used in 1987-88, but the full Talents Unlimited model was not used. While Talents Unlimited was added subsequently, it appears this facet of the program has never been as strong as would be optimal. Recent EXCEL training may have helped in this effort.

   Each school should be asked to evaluate its success annually based upon mutually acceptable district standards. For example, giving schools more guidance on the type of test score gains to expect or changes in modality ratings that are signs of a successful

program would be helpful. The most successful schools should be identified to share information with other schools and for closer follow-up. This follow-up would enable a closer look at whether gains are maintained subsequently. First grade and kindergarten teachers should review kindergarten results together to assure coordinated efforts continue.

E&R is already working with staff to establish a central data file that would enable monitoring students longitudinally. This tracking would be useful for two purposes--1) it would enable lists to be printed each fall of students with continuing needs (first grade teachers would then be alerted to which records to check) and 2) it would allow longitudinal monitoring of students across the years and schools more easily. EPSF national staff indicate a willingness to include WCPSS data in their analyses if certain conditions can be met. This has not worked out in the past. If feasible, this approach could provide valuable information at a minimal cost.

3. EPSF's connection to other district efforts aimed at student success should be clarified and communicated **clearly** to school staff. **A cohesive plan for prekindergarten through grade 2 (at least) is needed.** The plans from the WCPSS goal committees addressing grade 2 achievement and at-risk students will hopefully address this need.

   Prekindergarten and first grade appear to be key areas of need. Expanded prekindergarten options could decrease the number of students who are far behind upon entry to kindergarten. Greater coordination, communication, and alignment of approaches are needed between the more developmentally oriented kindergarten and the more academically oriented first grade program. First grade programs could continue to address students' special modality needs, reinforce the growth of those who had needs in kindergarten, and help to optimize all students' functional levels. These efforts may focus on a strengthening of the use of regular curriculum and basal readers, as well as special efforts. More training and discussion are probably needed in how to deliver the first grade curriculum in developmentally appropriate ways. Reading Recovery and other Chapter 1 support can play an important role for students with language needs. Other programs or special materials may be helpful for first grade teachers as well. These might come from EPSF, On the Way to Success in Reading and Writing (a program designed as a follow-up for EPSF), or other sources.

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INTRODUCTION

Early Prevention of School Failure (EPSF) is a nationally validated program designed to enhance school performance by identifying student needs and strengths early in the educational experience (ages four to six). EPSF provides early screening to identify and strategies to address students' developmental learning needs and strengths.

Early Prevention of School Failure (EPSF) was introduced to the Wake County Public School System (WCPSS) in 1986-87 as a pilot kindergarten effort in several elementary schools. The program has been phased into all elementary schools since 1986-87; all schools have had EPSF since 1989-90. E&R was asked to evaluate the success of EPSF in WCPSS. In summer, 1991, information was reported on the implementation and effectiveness of the program as implemented in 1990-91. (The Report Summary for E&R Report No. 91.06 is shown in Attachment 1.)

This report focuses on long-term effects of EPSF on subsequent school success. In 1987-88, seven schools had EPSF in place; four provided EPSF records. The progress of kindergartners in these four EPSF schools through fall, 1991 was compared to that of kindergartners in four schools with similar characteristics.

PROGRAM COMPONENTS

Major components of the EPSF program as implemented in 1987-88 are listed below.

Training/Coordination: All kindergarten teachers and elementary principals received two days of training. Some kindergarten teachers, identified as lead teachers, received five full days of training. First grade teachers were not trained.

Team Screening: All incoming kindergarten students in participating schools were screened by a team of school professionals in five areas: language, auditory, visual, fine motor, and gross motor skills. The progress of students with needs in two or more areas was checked by retesting in the spring.

Team Conference: Observations, screening scores, results of criterion-referenced items, and parent information were compiled and evaluated. Individual educational recommendations were made regarding learning styles and special needs for each student.

Educational Planning: Using the recommendations emerging from the conference, the teachers planned to meet the needs of each child in the classroom. Curriculum resources and teaching strategies were matched to needs and strengths.

Direct Modality Instruction: Program recommendations included 10-20 minutes of daily instruction for groups with identified needs. A management system format was provided for record keeping as children practiced and mastered the skills.

Talents: The Talents curriculum provided special resources to use with average and advanced students in furthering their skills development.

Parent Involvement: Parents were encouraged to become informed about the program and to volunteer in the classroom. They were also provided specific and practical activities to use in working with their children at home.

EVALUATION DESIGN

OVERVIEW

This longitudinal study included two major facets:

1) A long-term follow-up through fall, 1992 for the EPSF schools and comparison schools (with information also provided on EPSF schools without records and the system overall), and
2) A short-term follow-up from fall, 1987 through spring, 1988 for needs students within EPSF schools.

In the **long-term** part of the EPSF study, kindergartners in EPSF schools in 1987-88 were followed through 1991-92 (when they were expected to be in grade 4 if promoted each year). Two major comparisons were made. First, the EPSF school students' progress was compared to that of 1987-88 kindergartners in similar schools which did not have EPSF. Comparison schools were chosen to match the EPSF schools as closely as possible, based on historical data and knowledge of the schools.

A main goal of the EPSF program is to address students' needs early so that they can handle subsequent educational experiences successfully. Students with strengths are provided experiences to encourage further development of these. Students identified as having moderate or considerable needs receive targeted modality instruction to address these needs so that they can subsequently function at least at an average level in the classroom setting. If EPSF was successful, we expected that students who were kindergartners in EPSF schools in 1987-88 would show the following characteristics when compared to those in non-EPSF comparison schools:

- Significantly lower special education placement rates;
- Significantly lower retention rates by grade 3; and
- Significantly higher third grade CAT NCE mean scores.

The second major set of comparisons compared students within EPSF schools. We expected that, if EPSF had fully addressed the needs of those students with moderate or considerable needs in two or more areas, there would be no significant difference in the CAT, retention rates, or special education rates of these kindergarten students when compared to other kindergartners in their school.

The **short-term** EPSF follow-up checked students' progress within the 1987-88 school year in receptive language. This facet was added to aid in interpreting the long-term results. Fall and spring scores for students who entered kindergarten with age-equivalent scores on the PPVT were analyzed. PPVT scores and gains were compared both to national norms and EPSF national studies. Information available for other need areas was not sufficient to interpret progress.

GROUPS STUDIED

Four schools which implemented EPSF in 1987-88 with all kindergartners composed the "treatment" group. These schools, referred to as "EPSF schools" throughout this report, were Conn, Poe, Wiley, and Swift Creek. All but Swift Creek were magnet schools. This was the second year of a pilot of EPSF in WCPSS.

For the long-term follow-up, four comparison schools were chosen which were as similar as possible to the EPSF schools based on their 1987-88 characteristics. Characteristics considered included ethnicity (percentage of students who were White, Black, and Other), general characteristics of the schools (e.g., magnet status, location, and urban vs. rural status), and third grade CAT scores (the first grade at which standardized achievement tests are given in Wake County and the grade which would be examined as the posttest). CAT reading scores for spring, 1988 were given some priority over mathematics scores in selecting comparison schools. (Total Battery scores were not available from 1987-88.) The schools chosen (Powell, Fuller, Garner, and Northwoods) were the closest matches available; Powell and Fuller are magnet schools. This group of schools is referred to as the "comparison schools" throughout this report. Figures 1 and 2 show the ethnicity and CAT scores for the two groups, by school. The percentage of minority students was quite close (42% in the EPSF schools and 40% in the comparison schools). CAT scores tended to balance out for the two groups as a whole, with slightly higher scores for the EPSF schools overall.

Figure 1
1987-88 Ethnic Makeup of Schools

Group	Schools	Minority %		White %
		Black	Other	
EPSF SCHOOLS	Conn (N=522)	44	1	55
	Poe (N=483)	51	7	42
	Wiley (N=358)	27	20	53
	Swift Creek (N=661)	24	1	75
	Weighted Total	36.13	5.72	58.08
COMPARISON SCHOOLS	Powell (N=418)	47	1	52
	Fuller (N=396)	48	1	51
	Garner (N=806)	42	1	57
	Northwoods (N=663)	21	5	74
	Weighted Total	37.86	2.16	59.98

Figure 2
1987-88 3rd Grade CAT
Mean Percentile Scores
(converted from scaled scores)

Group	Schools	Reading Total	Math Total
EPSF SCHOOLS	Conn (N=88)	67	71
	Poe (N=79)	44	53
	Wiley (N=61)	62	76
	Swift Creek (N=102)	70	77
COMPARISON SCHOOLS	Powell (N=74)	56	62
	Fuller (N=69)	56	65
	Garner (N=140)	49	59
	Northwoods (N=102)	77	81

In addition, two other groups are included for context and further comparisons. One group includes schools which were known to have implemented EPSF for part or all of 1987-88 but for whom records were not available (Hunter, York, and Farmington Woods). This group is primarily useful as context for the kind of results seen in the primary EPSF study group. The other group includes all other kindergartners in the WCPSS schools in 1987-88 who were still enrolled in 1990-91. This group provides the context for the standards likely to be set systemwide for "average" performance. These two additional groups of schools tended to have somewhat fewer minority and low-income students.

The students included were all those still enrolled in WCPSS as of fall, 1992, regardless of their present school. This was done to represent the "natural" experience of students within the system. All charts are labeled to reflect students' school assignments in kindergarten (1987-88). A large number of students have changed school assignments since that time. Some of these changes were likely to have been voluntary and others not. The 285 students in the four EPSF schools were in 42 schools by fall of 1992; the 339 students in the four comparison schools were in 44 schools by fall, 1992.

LIMITATIONS

Random assignment of similar students to receive or not receive a service is the strongest evaluation design. However, this is seldom possible in education, and always impossible in a study conducted after the intervention is complete. A matched-group design is fairly common in educational evaluation, and the strongest design possible given the post-hoc nature of the study. The EPSF and comparison schools were found to be very similar (both in 1987-88 and 1990-91) for the characteristics matched. However, conclusions must be made somewhat more cautiously than they would with a design incorporating random

assignment of students to receive service or not because all variables of importance may not be matched.

Overall comparisons of EPSF and comparison schools assume all students in EPSF schools were served. Specific data were not available on actual implementation or follow-up (although staff generally reported good implementation). In addition, it is not known whether any developmental screening or special programs were in use at the comparison schools in 1987-88. The district did implement a new kindergarten curriculum that was more developmentally based that year, but that would be true at both the EPSF and comparison schools (and should therefore not bias the results).

Comparing the progress of students with considerable or moderate needs in the EPSF schools versus similar students in comparison schools was not possible, because screening was not done districtwide at that point. This information would have helped us determine whether "needs" students' progress in EPSF schools in 1987-88 was stronger than in comparison schools.

The information sheets provided by EPSF schools did help in determining students' progress in receptive vocabulary on the PPVT, but data were not available on students' status for each test and modality in a way which could be easily interpreted. (Modality ratings are computed within each school by an EPSF software program which weighs and combines test scores.) The new forms in use for 1991-92 will make this tracking easier.

The variables studied as outcomes (CAT achievement test scores, retention rates, and special education placements) are important and consistent with national studies. However, they are obviously not the only indicators of the impact of EPSF in helping students perform adequately in the classroom. Attitude toward schools, self-esteem, and motor skills were not measured directly (although other results may have been affected by them). PPVT or tests of motor skills are not given past grade K, and therefore could not be examined. Criterion-referenced test scores were not available and the CAT is a more general measure of achievement.

Finally, comparisons within EPSF schools set a high standard for success. National EPSF studies indicate EPSF students are indistinguishable longitudinally from classmates on variables such as nationally normed tests, special education referrals, and retention rates. However, because WCPSS is a high achieving district, this may be a higher standard than in other systems nationwide. For this reason, "needs" students scores were also compared to national norms for the tests monitored.

In spite of these limitations, the consistent results lend confidence to the interpretation of findings and to the strength of conclusions drawn.

SHORT-TERM RESULTS--SPRING, 1988

In order to interpret long-term results, it was considered important to have some information on how successful the EPSF program was during the initial implementation year of 1987-88. Informal feedback from central staff indicated school staff were well-trained, the program was well-implemented within the kindergarten year, and central coordination and support were strong.

Unfortunately, full information on the needs and strengths of students was not available for fall and spring of 1987-88. However, fall and spring PPVT scores were available for those students identified as having two or more areas of moderate or considerable needs in the fall. While the PPVT represents only one facet of need measured by EPSF, receptive vocabulary scores on the PPVT have been found to correlate quite highly with achievement test scores. In addition, language tends to be an area in which many students have needs. Analyzing this information thus provided one important source of information on program success.

Records were reviewed to find those students who entered kindergarten with an age equivalent score of less than 5 years and 0 months. Pretest scores for these students ranged from 1 year 9 months to 4 years 11 months. The 71 students who met this description were considered to have needs in this area for purposes of this study. The spring posttest scores for these students were then examined. Posttest scores ranged from 2 years 7 months to 6 years 5 months. (See Attachment 2 for a full listing of scores and gains.)

Average gains between fall and spring in language on the PPVT were 1.48 months per month of instruction for those who began with scores below five years of age. (A one month gain per month of instruction would be expected with the regular instructional program.) Students in the original EPSF national studies made average gains on the PPVT ranging from 1.39 to 3.12 months per month of instruction. Thus, WCPSS gains were positive but at the low end of gains seen in national pilot sites.

Another analysis categorized student scores based on the number of months gained on the PPVT. Gains of less than 8 months were considered less than normal growth, gains of 8 months were considered normal (and would be expected without an intervention), and gains above 8 months were considered greater than normal growth (and would be signs of program success). Luceille Warner (national project director for EPSF) suggests that successful students in EPSF should gain at least 1.5 months per month of instruction in order to enable them to "catch up" to their classmates. The number of students reaching this criterion was also checked. Figure 3 summarizes this information.

- Overall, 47 of the 71 "needs" students (66%) gained over one month per month of instruction, with 30 of these students (42% of 71) gaining 1.5 months or more per month of instruction.

- On the other hand, 22 students (31% of 71) gained less than one month per month of instruction and two students (3%) gained almost exactly one month per month of instruction.

Thus, it appears not quite half of those served in WCPSS were able to make the kind of gains which would help them catch up to classmates, but a sizable group (32%) actually made smaller gains than would be expected without any special intervention.

Figure 3
Peabody Picture Vocabulary Test
Fall, 1987 to Spring, 1988

Group Peabody Score Gains in Months

Gain in Months	Number of Students	Percentage
< 8	22	31.0
8	2	2.8
9-12	17	23.9
> 12	30	42.3
Total	71	100.0

EPSF literature does indicate that one year may not be enough to address **all** of the students' needs. The importance of follow-up in first grade is therefore heightened. Information from former staff indicates that a follow-up was not part of the EPSF program in WCPSS at that time.

LONG-TERM RESULTS--FALL 1991-92

GROUP CHARACTERISTICS

In order to determine the extent to which EPSF and comparison group students remained demographically similar four years later, the two groups were compared on fall, 1991 characteristics. Groups were compared on ethnicity, gender, and free lunch status (as an indicator of socio-economic status) based on those students who remained in the system (see Figures 4, 5, and 6).

- The total majority/minority makeup of the two groups was close; 56% of the EPSF group and 60% of the comparison group were White. Likewise, the percentage of students who were Black was similar, with 40% of the EPSF and 38% of the comparison group being Black. (These percentages were similar to those found in 1987-88.)

- The groups were similar in terms of gender as well. Both groups had a slightly higher percentage of males than females still in the system. The EPSF group had 55% male students, while the comparison group had 53%.

- A somewhat higher percentage of EPSF students (38%) was found to be eligible for free or reduced-priced lunch than were students in the comparison schools (27%).

Figure 4
Distribution by Ethnicity

Group	Subgroups	Asian		Black		American Indian		Hispanic		White	
EPSF SCHOOLS	Conn, Poe, Wiley, Swift Creek	#	%	#	%	#	%	#	%	#	%
	High & Moderate Need Students	4	4.3	56	59.6	1	1.1	0	0.0	33	35.1
	Other Students	4	2.1	57	30.2	0	0.0	1	0.5	127	67.2
	Total	8	2.8	113	39.9	1	0.4	1	0.4	160	56.0
COMPARISON SCHOOLS	Powell, Fuller, Garner, Northwoods Total (N=338)	6	1.8	128	37.9	2	0.6	0	0.0	202	59.8
OTHER COMPARISONS	Other WCPSS Elementary (N=2835)	32	1.1	860	30.3	6	0.2	9	3	1928	68.0
	EPSF Schools Without Records (N=264)	15	5.7	57	21.6	0	0.0	2	0.8	190	72.0

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Figure 5
Distribution of Population by Gender

Group	Subgroups	% Male	% Female
EPSF SCHOOLS	Conn, Poe, Wiley, Swift Creek		
	High & Moderate Need Students (N=94)	51.1	48.9
	Other Students (N=191)	54.1	42.9
	Total (N=285)	55.1	44.9
COMPARISON GROUPS	Powell, Fuller, Garner, Northwoods		
	Total (N=339)	52.5	47.5
OTHER COMPARISONS	Other WCPSS Elementary (N=2839)	51.4	48.6
	EPSF Schools without Records (N=266)	48.5	51.5

Figure 6
Lunch Status as an Indicator of Socio-Economic Status

Group	Subgroups	Reduced Lunch		Free Lunch		Total	
EPSF SCHOOLS	Conn, Poe, Wiley, Swift Creek	N	%	N	%	N	%
	High & Moderate Need Students (N=94)	11	12	38	40	49	52
	Other Students (N=191)	8	4	52	27	60	31
	Total (N=285)	19	7	90	32	109	38
COMPARISON SCHOOLS	Powell, Fuller, Garner, Northwoods Total (N=339)	23	7	69	20	92	27
OTHER COMPARISONS	Other WCPSS Elementary (N=2839)	146	5	575	20	721	25
	EPSF Schools without Records (N=266)	10	4	44	17	54	20

Second grade Otis Lennon School Abilities Test (OLSAT) scores were examined as well to compare the ability levels of the groups. Ability test scores are not considered as changeable due to intervention as are achievement scores (although some believe early stimulation can make a difference). As Figure 7 illustrates, the ability of students in the EPSF and comparison schools was quite similar (OLSAT scores of 102 for EPSF and 101 for the comparison group) at grade 2.

Figure 7
Otis Lennon Results
Grade 2--Spring 1990
Student Ability Index (SAI) Scores

Group	Subgroups	Verbal		Non-Verbal		Total	
EPSF SCHOOLS	Conn, Poe, Wiley, Swift Creek	N	Mean SAI Score	N	Mean SAI Score	N	Mean SAI Score
	High & Moderate Need Students	70	93.34	70	94.06	70	92.93
	Other Students	159	108.33	158	104.18	159	106.50
	Total	229	103.75	229	101.08	229	102.35
COMPARISON SCHOOLS	Powell, Fuller, Garner, Northwoods	261	103.88	261	99.23	261	101.18
OTHER COMPARISONS	Other WCPSS Elementary	2258	105.87	2259	102.09	2258	103.87
	EPSF Schools Without Records	221	111.67	221	107.41	221	109.86

The two groups were considered similar enough in composition to allow valid comparisons. The fact that the EPSF group included slightly more low income students should be kept in mind, however, in making interpretations. (Low income students tend to have slightly lower achievement nationally.) Of course, if EPSF were fully successful, this pattern would not be evident.

STUDENT OUTCOMES

CAT SCORES 1991-92

Within each results section (for CAT scores, retention rates, and special education placements), the first question addressed relates to the performance of EPSF schools versus comparison schools. The second question compares the performance of "needs" students within EPSF schools to all other students in the school.

Did EPSF schools show significantly higher CAT NCE mean scores than the comparison schools by spring, 1992?

No. CAT scores in all areas were very similar when the total for EPSF schools was compared to the comparison schools (see Figure 8). All means were within two points of each other, favoring the comparison group for five of six tests. The Total Battery scores were compared for statistical significance using a two-tailed t-test; no significant difference was found (t=.5945; df=164,70; p=.5527).

Figure 8
Mean CAT NCE Scores
Spring, 1991

Group	Vocabulary	Reading Comprehension	Total Reading	Total Language	Total Math	Total Battery
EPSF SCHOOLS: CONN, POE, WILEY, SWIFT CREEK						
High & Moderate Need Students (N=71-79)	47.39	47.67	48.65	52.30	55.28	51.39
Other Students (N=165-170)	59.49	59.18	60.68	64.71	66.87	65.28
Total (N=236-249)	55.65	55.53	57.06	60.97	63.39	61.10
COMPARISON GROUPS						
Comparison Schools (N=277-288)	56.31	55.83	57.68	60.40	65.62	62.22
Other WCPSS Elementary (N=2403-2492)	60.47	59.27	61.43	64.10	67.22	65.60
EPSF School Without Records (N=230-244)	64.77	65.11	68.06	70.99	74.56	73.87

NCE= Normal Curve Equivalent

N= Number students tested. This varies slightly by test. Ns for Total Battery scores are the lowest number given for the group. Total Battery scores are given only if Total Reading, Total Language, and Total Math scores are available; Total Battery scores reflect a composite with separate norms tables. Vocabulary and Reading Comprehension scores feed into the Total Reading Score (again with separate norms tables).

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Within the EPSF schools, did students identified as having two or more areas of considerable or moderate need in kindergarten show similar CAT scores to other students in their schools by the end of third grade? Were students able to score at the national average?

Students identified in kindergarten as having two or more areas of high or moderate needs scored did **not** show similar third grade CAT scores to those without such needs (see Figure 8). A two-tailed t-test revealed Total Battery NCE scores were significantly lower for the high and moderate needs group (51.39) compared to others (65.28) in their schools ($t=5.3822$; $df=164,70$; $p=.0001$). Thus, EPSF was not able to address the needs of these "needs" students adequately enough for them to become fully "average" in their classroom functioning.

It must be recognized, however, that this is quite a challenging standard in a high achieving district like WCPSS. Mean Total Battery NCE scores for WCPSS kindergartners in other schools not involved in EPSF was 65.6--equivalent to the 77th percentile--considerably above the national norm.

Findings are more positive, however, if EPSF students' performance is compared to national standards. EPSF "needs" students **were** able to score close to or at the national norm of 50 in all areas measured by the CAT. This achievement is somewhat higher than you might predict, given second grade Otis Lennon ability scores of 93 (slightly below the national average of 100). EPSF (or subsequent WCPSS instruction) may have contributed to this positive difference. It is not possible to say for sure because other events besides EPSF could have contributed, and it was not possible to identify "needs" students in the comparison schools.

RETENTION RATES

Did 1987-88 kindergartners from EPSF schools show lower retention rates by grade 4 than those in comparison schools?

No. As shown in Figure 9, the percentage of students who had been retained one or more times by the fall of grade 4 was very similar for EPSF and comparison schools (12.6% for EPSF and 12.1% for the comparison schools). Rates were not lower in EPSF schools. A Chi-Square statistic was computed to see if the pattern of retention was different for the two groups; no significant difference was found (Chi Square value = .041, $df=1$, $p=.839$).

Within the EPSF schools, did students identified as having two or more areas of considerable or moderate need in kindergarten show similar retention rates to other students in their schools by the end of third grade?

No. Within EPSF schools, high and moderate needs students were retained at twice the rate of other students. Just over 19% of EPSF students with high and moderate needs were retained at least once, while 9.4% of other students in EPSF schools were retained at least once. This difference was statistically significant at the .02 level (Chi Square value = 5.398, df = 1). If retention is considered one type of academic failure, EPSF was not able to eliminate the gap between "needs" students and other students.

Figure 9
Retention Rates

Group	Subgroups	Number Retained	% Retained
EPSF SCHOOLS	Conn, Poe, Wiley, Swift Creek		
	High & Moderate Need Students (N=94)	18	19.15
	Other Students (N=191)	18	9.42
	Total (N=285)	36	12.63
COMPARISON SCHOOLS	Powell, Fuller, Garner, Northwoods Total (N=339)	41	12.09
OTHER COMPARISONS	Other WCPSS Elementary (N=2840)	386	13.60
	EPSF Schools without Records (N=266)	30	11.28

SPECIAL EDUCATION PLACEMENTS

Did kindergartners in EPSF schools in 1987-88 show significantly lower special education placement rates (other than AG) by grade 4 than those in the comparison schools?

No. As Figure 10 illustrates, the presence of EPSF did appear to keep the percentage of students placed in special education in EPSF schools at the end of kindergarten lower than in the comparison schools (1% versus 16%).

However, by the fall of 1991-92, the total percentage of students placed in special education from the EPSF (20.35%) and comparison schools (18.29%) was similar. A Chi Square analysis found no significant difference in placement patterns (Chi Square value = .424, df = 1, p = .515).

Within the EPSF schools, did students identified as having two or more areas of considerable or moderate need in kindergarten show similar special education placement rates to other students in their schools by the fall of fourth grade?

Yes. Within EPSF schools, actual placement rates for high and moderate needs students appeared slightly higher than for other students (26.60% versus 17.3%). However, this

difference was not statistically significant based on a Chi Square (Chi Square value = 3.375, df = 1, p = .066).

The number of students placed in the exceptional children category of learning disabled (LD) was examined separately because it seemed to be a category EPSF would impact directly. If EPSF was successful long-term, EPSF schools would be expected to have fewer students placed in this category than the comparison schools. Figure 11 illustrates, however, that this was not the case. EPSF schools actually had a higher percentage of students identified as LD by the fall of 1992 (16.1% versus 10.4%).

Figure 10
Special Education Placements
(Other Than AG)

Groups	Subgroups	1987-88		1991-92	
EPSF SCHOOLS	Conn, Poe, Wiley, Swift Creek	#	%	#	%
	High & Moderate Need Students (N=94)	2	2.1	25	26.6
	Other Students (N=191)	1	.5	33	17.3
	Total (N=285)	3	1.1	58	20.4
COMPARISON SCHOOLS	Powell, Fuller, Garner, Northwoods Total (N=339)	19	15.8	62	18.3

Figure 11
Placement in Learning Disabled Category
by Fall, 1992

Group	Subgroups	Number	Percent
EPSF SCHOOLS	Conn, Poe, Wiley, Swift Creek		
	High and Moderate Need Students (N=94)	22	23.4
	Other Students (N=191)	24	12.6
	Total (N=285)	46	16.1
COMPARISON SCHOOLS	Powell, Fuller, Garner, Northwoods Total N=(338)	35	10.4
OTHER COMPARISONS	Other WCPSS Elementary (N = 2,835)	273	9.6
	EPSF Schools Without Records (N = 264)	27	10.2

SUMMARY

The data examined show a consistent pattern in which students served by EPSF in kindergarten did not fare better by the fall of fourth grade than those not served by this program. Special education placement rates suggest that EPSF may have had an impact in the kindergarten year, but this difference did not persist through grade 4.

While the lack of a true experimental design makes it somewhat difficult to draw firm conclusions, the consistency of the patterns strengthens the interpretation that EPSF did not have a long-term positive impact on students in the areas studied. The instructional program in the other schools appeared to be about equal in terms of impact on subsequent student performance.

Within EPSF schools, the data from CAT and retention rates suggest that students identified as having moderate or considerable needs in two or more areas within EPSF schools still stood out as "different" three years later from their classmates. Special education placement rates for "needs" students, on the other hand, were similar to those of classmates. A positive note on achievement is that "needs" students did score, on the average, close to or at the national norm levels, and slightly above the level expected based on OLSAT scores. The fact that WCPSS is a fairly high-achieving district makes it more difficult to address these students' needs so fully that they are indistinguishable from their classmates.

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ATTACHMENT 1
EVALUATION REPORT: EARLY PREVENTION OF SCHOOL FAILURE

August, 1991
E&R Report #91.06

REPORT SUMMARY

Authors: Joyce D. Zeh and Nancy R. Baenen

BACKGROUND

Early Prevention of School Failure (EPSF) is a nationally validated program that is designed to prevent school failure by addressing student needs early in their educational experience. EPSF provides early screening to identify students' developmental learning needs, as well as strategies to address these needs and build student strengths.

EPSF was introduced to the Wake County Public School System (WCPSS) in 1986-87 as a pilot effort in several elementary schools. The program has been phased into all elementary schools since that time; all schools have had EPSF in both 1989-90 and 1990-91.

While EPSF has been validated in multiple locations around the country, this is the first evaluation of the program in the WCPSS. This first report focuses on EPSF 1990-91 implementation and staff attitudes; it is based on structured interviews and surveys of staff, plus of student screening results. A second report, scheduled for completion this December, will focus primarily on long-term evidence of EPSF effectiveness for WCPSS students.

MAJOR FINDINGS

SCREENING: Fall screening is the most valued part of EPSF, because it effectively identifies students' needs. Survey results clearly indicate mixed views on the timing of the screening, with 54% agreeing it should occur during the school year and 46% disagreeing or undecided. Most comments from the interviews and surveys favor earlier screening.

KINDERGARTEN INSTRUCTION: Three fourths of the kindergarten teachers surveyed indicate they incorporate modality instruction for their EPSF students daily. Teacher definitions of "incorporating modality instruction" appear to vary; interviews reveal great differences in the extent to which specific EPSF strategies and separate modality groups are utilized. Most teachers and administrators deem modality instruction strategies as valuable only when they are integrated into the general curriculum--centers, units, and content areas (one acceptable delivery method for EPSF). Many interviewees also conclude that unless the techniques, strategies, and methods are modified, the program is unmanageable and ineffective.

TRAINING: EPSF training is viewed as effective by most (78%) of the kindergarten teachers surveyed, with 69% seeing the training as sufficient for all components. Teachers and principals who were interviewed had mixed views on the quality of the training provided thus far. Comments from both sources indicate that kindergarten and first grade teachers, as well as principals and assistant principals, would like more ongoing training. Those with the most training feel most comfortable using EPSF. Some teachers (as well as principals) have missed training along the way. Monitoring EPSF has been delegated to assistant principals in some schools, and they were not involved in the formal training.

SUPPLIES: Of the 12 teachers interviewed, 11 (92%) stated that they have not had adequate supplies to implement EPSF appropriately, even when it is integrated into the kindergarten curriculum. They express great concern over the lack of consumable and manipulative materials for the entire early childhood program.

FIRST GRADE: Implementation of EPSF at the first grade level bears further investigation. The limited number of first grade teachers interviews this past spring (8) suggest that EPSF is not implemented as fully in first grade as in grade K, that coordination between kindergarten and first grade teachers is limited, and that training needs exist. First grade teachers do appear to use the kindergarten posttest information to group students and select instructional materials. Follow-up services to students with continuing needs appear less than ideal.

EFFECTIVENESS: Among kindergarten teachers surveyed, 73% agree that EPSF helps to overcome skill deficiencies. However, fewer teachers (53%) see EPSF as being as effective as in the past. Interviews indicate 59% of the 22 teachers and principals see the program as effective overall. Most interview respondents (82%) do not attribute student outcomes directly to EPSF. Rather, modality instruction, in conjunction with kindergarten curriculum and materials, are seen as responsible for positive results.

EARLY CHILDHOOD: Principals and teachers express some general concerns about the overall WCPSS program at the early grades. Those interviewed express dissatisfaction with the addition of new programs for kindergarten and first grade without the deletion of the programs started earlier. They also feel a lack of consistency in WCPSS in terms of the definition of "early childhood" and continuity in approaches across the grades (especially kindergarten and first grade). The academic expectations of first grade are seen as conflicting with the developmental approach.

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RECOMMENDATIONS

Findings in this report point to areas of concern that bear further discussion by WCPSS staff at both the central and school levels. The following recommendations and suggestions are designed as a springboard for such discussions.

EARLY INTERVENTION: Given the move toward school-based management, central staff must deal with the extent to which EPSF screening and instructional strategies are mandated districtwide. The philosophy of EPSF seems to be well accepted, the screening is valued, but implementation of EPSF strategies varies considerably. Implementation and commitment seem to be stronger at the kindergarten level than at the first grade level. The issue of whether EPSF is the most cost effective way, and the only acceptable way, to meet students' needs must be decided. One alternative would be to mandate the screening (for consistency systemwide and Chapter 1 follow-up in first grade) and allow schools some flexibility in how needs are met. Schools using alternate models could be asked to detail their plans to meet student needs and show results at least equal to those using EPSF strategies.

SUPPLIES: Nearly all (11 of 12, or 92%) kindergarten teachers are clearly concerned about insufficient funds for consumable supplies for EPSF activities such as science, cooking, and art. Principals and school staffs should consider whether and how to meet these resource needs through budget adjustments, business donations, PTA, fund raisers, parents, or other means. Teachers could also discuss ways to share non-consumable supplies.

TRAINING: Despite the limited time available for training, creative ways to provide additional ongoing training for teachers and school administrators should be explored. Topics for staff development suggested by study results are listed below.

Kindergarten: Integrating modality instruction into various curriculum areas in manageable and appropriate ways; building on the strengths of those who score well in the EPSF screening.

First Grade: The importance of follow-up with the many students who enter first grade with continuing needs; more information on how EPSF can help them meet these needs; their role in the WCPSS vision of early childhood; the role of developmental and academic orientations at the first grade level; ways to share materials effectively.

Building and Central Office Administrators: Observation, monitoring, and evaluation techniques; refresher on EPSF goals and methodology.

Parents: Overview on EPSF goals and strategies; the importance of their involvement and the type of involvement expected; WCPSS philosophy on early childhood.

MONITORING AND FOLLOW-UP: Standards for the kind of progress that might be expected by the end of kindergarten and first grade should be determined, and success should be monitored more closely by teachers, principals, and central staff. Efforts are being considered centrally to improve the district's ability to track student progress and success overall.

ATTACHMENT 2
PEABODY PICTURE VOCABULARY TEST (PPVT)
AGE EQUIVALENT SCORES AND GAINS
FOR INDIVIDUAL STUDENTS

AGE EQUIVALENT SCORE		PPVT PRE-POST GAIN (MONTHS)
Pre (Fall)	Post (Spring)	
1-9	4-1	>28
2-4	2-7	3
2-6	3-9	15
2-11	3-1	2
3-3	5-5	26
3-3	4-8	17
3-5	4-5	12
3-5	4-9	16
3-7	4-2	7
3-7	4-4	9
3-7	5-6	23
3-7	4-6	11
3-8	4-7	11
3-8	5-11	27
3-8	3-11	3
3-9	4-6	9
3-9	4-9	12
3-9	4-2	5
3-10	4-6	8

3-10	4-11	13
3-10	4-5	7
3-10	4-7	9
3-11	4-7	8
3-11	5-2	15
3-11	4-2	3
3-11	4-10	11
4-0	4-11	11
4-0	4-4	4
4-0	4-9	9
4-0	5-3	15
4-1	4-2	1
4-1	5-7	18
4-1	5-6	17
4-1	6-2	25
4-2	4-11	9
4-2	4-7	5
4-2	4-7	5
4-2	5-7	17
4-2	5-7	17
4-2	4-9	7
4-3	4-7	4
4-3	5-4	13
4-3	5-2	11
4-3	5-0	9
4-3	6-3	24
4-3	5-11	20

4-3	6-1	22
4-4	6-9	29
4-4	5-6	14
4-4	5-4	12
4-4	5-7	15
4-5	6-1	20
4-5	4-6	1
4-5	5-8	15
4-5	5-8	15
4-5	4-3	-2
4-6	4-9	3
4-6	6-1	19
4-6	4-9	3
4-6	6-2	20
4-6	4-11	5
4-7	5-11	16
4-7	4-10	3
4-7	5-7	12
4-8	5-6	10
4-8	5-8	12
4-9	4-8	-1
4-9	6-0	15
4-9	6-5	20
4-9	5-1	4
4-11	5-6	7

EARLY PREVENTION OF SCHOOL FAILURE LONGITUDINAL STUDY 1987-1991

April, 1992

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